1. General Course Information

Course Information
BIO 3595: Genetics Engineering, FW21

Mon	Thu	10:30 AM	11:30 AM	Lectures/NCB 117
	Thu	03:30 PM	04:30 PM	Tutorial 2/PAB 34
	Thu	04:30 PM	05:30 PM	Tutorial 3/ PAB 34

Mode of delivery
Online, synchronous for lectures and tutorials

All course material will be posted to OWL: http://owl.uwo.ca. Any changes will be indicated on the OWL site and discussed with the class.

If students need assistance, they can seek support on the OWL Help page. Alternatively, they can contact the Western Technology Services Helpdesk. They can be contacted by phone at 519-661-3800 or ext. 83800.

Google Chrome or Mozilla Firefox are the preferred browsers to optimally use OWL; update your browsers frequently. Students interested in evaluating their internet speed, please click here.

Online Participation and Engagement

☒ Students are expected to participate and engage with content as much as possible

☒ Students can participate during lecture sessions or post on OWL Messages after watching the recording

☒ Students can also participate by interacting in the forums with their peers and instructors

2. Instructor Information
Vojislava Grbic, Associate Professor
vgrbic@uwo.ca

Jorden Maglov, graduate student
jmaglov@uwo.ca

Students must use their Western (@uwo.ca) email addresses when contacting their instructors.

3. Course Description/Syllabus

Aim: This course will present techniques and approaches currently in use in plant, microbial or medical biotechnology with the aim to: a) enhance synthesis of concepts presented in prerequisite courses and their operational use; b) develop critical thinking in the framework of agricultural genetics/genomics; c) empower students in knowledge-based problem solving. Lectures will be primarily aimed toward discussions of the course material, fostering knowledge synthesis/concept development/critical thinking. During tutorials, students give an oral presentation and a poster based on a primary research papers chosen from scientific journals. Besides being used to broaden the number of examples of the use of genetic engineering in research and biotechnology, the tutorials provide students the opportunity to develop oral presentation skills. Tutorials are mandatory.

Text: Plant Biotechnology: The Genetic Manipulation of Plants**,**
    Adrian Slater, Nigel W Scott, and Mark R Fowler

- TEXT BOOK and supplementary materials delivered through OWL contain ALL information necessary to successfully answer exam questions
- LECTURES will be primarily aimed toward discussions of the course material, fostering knowledge synthesis/concept development/critical thinking

Expected learning outcomes:
By the end of this course, students will be able to:
    a) Students will have a working knowledge of the approaches and tools used in agricultural biotechnology
    b) Students will be able to apply these approaches and tools in novel situations/problems
    c) Read and understand genetic and biotechnology primary scientific literature

Mon			Thu		10:30 AM	11:30 AM	Lectures
			Thu		03:30 PM	04:30 PM	Tutorial 2
			Thu		04:30 PM	05:30 PM	Tutorial 3

    synchronous online

Lecture Topics:
Introduction
Genome structure
Building a transgene: Methods, tools and technology commonly used in genetic engineering
            Transcriptional regulation of gene expression
            Translational regulation of gene expression
            Copy number of transgene
            Targeting of the foreign protein
            Stability of the foreign protein
            Transformation of transgene into a plant host
            Expression of the transgene
            Antisense and other knock-out technologies in plant biotechnology
Protein as a product
The genetic manipulation of herbicide, pest and disease resistance
The genetic manipulation of stress resistance
Molecular farming in plants
RNAi and genome editing

            Classes begin: January 11, 2022

Reading Week: February 14-20, 2022
Classes end: April 12, 2022

4. Course Materials
Text: Plant Biotechnology: The Genetic Manipulation of Plants**,**
 Adrian Slater, Nigel W Scott, and Mark R Fowler

- TEXT BOOK and supplementary materials delivered through OWL contain ALL information necessary to successfully answer exam questions

 Students should check OWL (http://owl.uwo.ca) on a regular basis for news and updates. This is the primary method by which information will be disseminated to all students in the class. Students are responsible for checking OWL on a regular basis.

 All course material will be posted to OWL: http://owl.uwo.ca.

 If students need assistance, they can seek support on the OWL Help page. Alternatively, they can contact the Western Technology Services Helpdesk. They can be contacted by phone at 519-661-3800 or ext. 83800.

 Technical Requirements
 Stable internet connection, computer

5. Methods of Evaluation

Seminar Presentation: 15% (**groups of two students**, presentations during tutorials), January 20 – March 31, 2022
Midterm test: 25%, February 10, 2022
Final exam: 40%, TBA
Poster: 15% (**groups of six students**, presentations during tutorials and in class), April 7, 2022
Participation: 5% (*attendance* at tutorials and participation to discussions)

 Include as appropriate

 ☒ All assignments are due at 11:55 pm EST unless otherwise specified

 ☒ Virtual proctoring will be used

 ☒ Written assignments will be submitted to Turnitin (statement in policies below)

 ☒ After an assessment is returned, students should wait 24 hours to digest feedback before contacting their evaluator; to ensure a timely response, reach out within 7 days

 Click here for a detailed and comprehensive set of policies and regulations concerning examinations and grading. The table below outlines the University-wide grade descriptors.

A+	90-100	One could scarcely expect better from a student at this level
A	80-89	Superior work which is clearly above average

B	70-79	Good work, meeting all requirements, and eminently satisfactory
C	60-69	Competent work, meeting requirements
D	50-59	Fair work, minimally acceptable
F	below 50	Fail

Accommodated Evaluations

Missed examination: A student who misses the midterm exam for a valid reason must provide documentation through the Deans office. *A cumulative final exam will be written.*
https://studentservices.uwo.ca/secure/index.cfm

Information about late or missed evaluations:

☒ Late assessments <u>without</u> self-reported absences (SRA) will be subject to a late penalty _10 %/day

☒ Late assessments <u>with</u> self-reported absences should be submitted within 24 hours of the end of the 48-hour period.

☒ An assessment cannot be submitted after it has been returned to the class;

☒ A make-up test will be offered

☒ If a make-up assessment is missed, the student will receive an INC and complete the task the next time the course is offered

6. EDI statement
The pronouns used by:
- [The instructor] are: she
- [The TAs] are: she

7. Land acknowledgment
We acknowledge that Western University is located on the traditional lands of the Anishinaabek, Haudenosaunee, Lūnaapéewak and Attawandaron peoples, on lands connected with the London Township and Sombra Treaties of 1796 and the Dish with One Spoon Covenant Wampum. This land continues to be home to diverse Indigenous peoples (e.g. First Nations, Métis and Inuit) whom we recognize as contemporary stewards of the land and vital contributors of our society.

More information about Indigenous Services (https://indigenous.uwo.ca/) and this Land Acknowledgement (https://communications.uwo.ca/comms/land-acknowledgement/) are available.

7. Accommodation and Accessibility

Accommodation Policies
Students with disabilities work with Accessible Education (formerly SSD) which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The Academic Accommodation for Students with Disabilities policy can be found at: https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic Accommodation_disabilities.pdf

Academic Consideration for Student Absence
Students will have up to two (2) opportunities during the regular academic year to use an on-line portal to self-report an absence during the semester, provided the following conditions are met: the absence is no more than 48 hours in duration, and the assessment for which consideration is being sought is worth 30% or less of the student's final grade. Students are expected to contact their instructors within 24

hours of the end of the period of the self-reported absence, unless noted on the syllabus. Students are not able to use the self-reporting option in the following circumstances:

- for exams scheduled by the Office of the Registrar (e.g., December and April exams)
- absence of a duration greater than 48 hours,
- assessments worth more than 30% of the student's final grade,
- if a student has already used the self-reporting portal twice during the academic year

If the conditions for a Self-Reported Absence are *not* met, students will need to provide a Student Medical Certificate if the absence is medical, or provide appropriate documentation if there are compassionate grounds for the absence in question. Students are encouraged to contact their Faculty academic counselling office to obtain more information about the relevant documentation.

Students should also note that individual instructors are not permitted to receive documentation directly from a student, whether in support of an application for consideration on medical grounds, or for other reasons. **All documentation required for absences that are not covered by the Self-Reported Absence Policy must be submitted to the Academic Counselling office of a student's Home Faculty.**

For policy on Academic Consideration for Student Absences - Undergraduate Students in First Entry Programs, see:
https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Consideration_for_absences.pdf
and for the Student Medical Certificate (SMC), see:
http://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf

Religious Accommodation
Students should consult the University's list of recognized religious holidays, and should give reasonable notice in writing, prior to the holiday, to the Instructor and an Academic Counsellor if their course requirements will be affected by a religious observance. Additional information is given in the Western Multicultural Calendar:
https://multiculturalcalendar.com/ecal/index.php?s=c-univwo

You may also be eligible to write the Special Exam if you are in a "Multiple Exam Situation" (see http://www.registrar.uwo.ca/examinations/exam_schedule.html).

8. Academic Policies

The website for Registrarial Services is http://www.registrar.uwo.ca.

In accordance with policy, http://www.uwo.ca/its/identity/activatenonstudent.html, the centrally administered e-mail account provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at his/her official university address is attended to in a timely manner.

All of the remote learning sessions for this course will be recorded. The data captured during these recordings may include your image, voice recordings, chat logs and personal identifiers (name displayed on the screen). The recordings will be used for educational purposes related to this course, including evaluations. The recordings may be disclosed to other individuals participating in the course for their

private or group study purposes. Please contact the instructor if you have any concerns related to session recordings.

Participants in this course are not permitted to record the sessions, except where recording is an approved accommodation, or the participant has the prior written permission of the instructor.

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf. [3000 levels and above:} Review Biology 2290 learning outcomes. You are expected to know what plagiarism is at this stage of your programme.

Tests and examinations in this course will be conducted using the remote proctoring service, such as Proctortrack. By taking this course, you are consenting to the use of this software and acknowledge that you will be required to provide **personal information** (including some biometric data) and the session will be **recorded**. More information about this remote proctoring service is available in the Online Proctoring Guidelines at the following link:
https://www.uwo.ca/univsec/pdf/onlineproctorguidelines.pdf

Completion of this course will require you to have a reliable internet connection and a device that meets the technical requirements for this service. Information about the technical requirements are available at the following link:
https://www.proctortrack.com/tech-requirements/

Tests and examinations in this course will be conducted using Zoom. You will be required to keep your camera on for the entire session, hold up your student card for identification purposes, and share your screen with the invigilator if asked to do so at any time during the exam. The exam session will **not** be recorded.*

Online Proctoring Guidelines at the following link:
https://www.uwo.ca/univsec/pdf/onlineproctorguidelines.pdf

Completion of this course will require you to have a reliable internet connection and a device that meets the system requirements for Zoom. Information about the system requirements are available at the following link:
https://support.zoom.us/hc/en-us

* Please note that Zoom servers are located outside Canada. If you would prefer to use only your first name or a nickname to login to Zoom, please provide this information to the instructor in advance of the test or examination.

Tests and examinations in this course will be conducted using both Zoom and the remote proctoring service, such as Proctortrack.

When Zoom is used for exam invigilation, you will be required to keep your camera on for the entire session, hold up your student card for identification purposes, and share your screen with the invigilator if asked to do so at any time during the exam. The exam session using Zoom will not be recorded.*

Proctortrack will require you to provide personal information (including some biometric data). The session will be recorded. By taking this course, you are consenting to the use of this software. More information about remote proctoring is available in the Online Proctoring Guidelines at the following link:
https://www.uwo.ca/univsec/pdf/onlineproctorguidelines.pdf

Professionalism & Privacy:

Western students are expected to follow the <u>Student Code of Conduct</u>. Additionally, the following expectations and professional conduct apply to this course:

☒ Students are expected to follow online etiquette

☒ All course materials created by the instructor(s) are copyrighted and cannot be sold/shared

☒ Recordings are not permitted (audio or video) without explicit permission

☒ Permitted recordings are not to be distributed

☒ All recorded sessions will remain within the course site or unlisted if streamed

Online Etiquette:
Some components of this course will involve online interactions. To ensure the best experience for both you and your classmates, please honour the following rules of etiquette:
• "arrive" to class on time
• use your computer and/or laptop if possible (as opposed to a cell phone or tablet)
• ensure that you are in a private location to protect the confidentiality of discussions in the event that a class discussion deals with sensitive or personal material
• to minimize background noise, mute your microphone for the entire class until you are invited to speak, unless directed otherwise
• [suggested] In order to give us optimum bandwidth and web quality, turn off your video camera for the entire class unless you are invited to speak
• please be prepared to turn your video camera off at the instructor's request if the internet connection becomes unstable
• unless invited by your instructor, do not share your screen in the meeting
The course instructor will act as moderator for the class and will deal with any questions from participants. To participate please consider the following:
• If you wish to speak, use the "raise hand" function and wait for the instructor to acknowledge you before beginning your comment or question.
• Please remember to unmute your microphone and turn on your video camera before speaking.
• Self-identify when speaking.
• Please remember to mute your mic and turn off your video camera after speaking (unless directed otherwise).
General considerations of "netiquette":
• Keep in mind the different cultural and linguistic backgrounds of the students in the course.
• Be courteous toward the instructor, your colleagues, and authors whose work you are discussing.
• Be respectful of the diversity of viewpoints that you will encounter in the class and in your readings. The exchange of diverse ideas and opinions is part of the scholarly environment. "Flaming" is never appropriate.
• Be professional and scholarly in all online postings. Use proper grammar and spelling. Cite the ideas of others appropriately.

Note that disruptive behaviour of any type during online classes, including inappropriate use of the chat function, is unacceptable. Students found guilty of Zoom-bombing a class or of other serious online offenses may be subject to disciplinary measures under the Code of Student Conduct.

8. Support Services

Please visit the Science & Basic Medical Sciences Academic Counselling webpage for information on add/drop courses, academic considerations for absences, appeals, exam conflicts, and many other academic related matters: https://www.uwo.ca/sci/counselling/

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Student Accessibility Services (SAS) at 661-2147 if you have any questions regarding accommodations.

The policy on Accommodation for Students with Disabilities can be found here: https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic%20Accommodation_disabilities.pdf

The policy on Accommodation for Religious Holidays can be found here: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_religious.pdf

Western University is committed to a thriving campus as we deliver our courses in the mixed model of both virtual and face-to-face formats. We encourage you to check out the Digital Student Experience website to manage your academics and well-being: https://www.uwo.ca/se/digital/.

Learning-skills counsellors at the Student Development Centre (http://www.sdc.uwo.ca) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling.

Students who are in emotional/mental distress should refer to Mental Health@Western (http://www.health.uwo.ca/mental_health) for a complete list of options about how to obtain help.

Additional student-run support services are offered by the USC, http://westernusc.ca/services.

The following links provide information about support services at Western University.

Appeal Procedures

Registrarial Services

Student Development Services

Student Health Services